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# Multisensory Experience in Dining Spaces Designing Through Light, Smell, Sound, and Texture in Restaurants

Ar. Aman Soni, Dr. Ramanjyot Shrivastava

<sup>1</sup>M.Arch.SAL School of Architecture

<sup>2</sup>Principal, SAL School of Architecture

**Abstract:** Dining spaces today focus on experience rather than just food. This research explores how multisensory design—engaging sight, sound, smell, and touch—enhances user comfort, emotions, and overall dining satisfaction. Restaurant interiors now play a key role in shaping user behavior and memory. Elements such as lighting, color, sound, aroma, materials, and spatial layout work together to create atmosphere. When these elements are balanced and integrated, they improve comfort, influence mood, and encourage longer stays. The study highlights that successful dining environments maintain harmony between sensory elements, consider local context, and prioritize user experience. It concludes with design strategies that help create spaces that are functional, emotionally engaging, and memorable.

**Keywords:** Multisensory Design, Spatial Sequencing, Sensory Integration, Dining Environment, Biophilic Design, User Behavior, Hospitality Interior and Architecture.

## I. INTRODUCTION

Dining spaces in urban India have evolved into social and experiential environments. People now choose restaurants based on ambiance and emotional connection, not just food. Multisensory design plays a central role in shaping this experience. Visual elements (lighting and color), sound (music), smell (aroma), and touch (materials and comfort) collectively influence perception, mood, and memory. A well-designed space feels cohesive and comfortable, while poor integration can create confusion or discomfort. This study aims to understand how these sensory elements combine to create meaningful dining experiences.

## II. EVOLUTION OF DINING SPACES: FROM FUNCTION TO EXPERIENCE

Earlier, restaurant design focused on efficiency, seating capacity, and smooth operation. Today, the focus has shifted toward creating immersive and memorable experiences. Restaurants are not just about food and service; they are about the overall experience they offer. In urban India, dining has become an important social and cultural activity. People visit restaurants not only to eat but also to spend time with others, celebrate occasions, and express their lifestyle and identity. So, human perception now is based on sensory integration, where all senses work together rather than independently. For example:

- Lighting can influence food perception
- Music affects mood
- Materials impact comfort

This integration forms the atmosphere, which defines how a space feels. Movement, touch, and interaction with the environment further shape the user experience.

## III. THEORETICAL FRAMEWORK OF MULTISENSORY DESIGN

In the past, restaurant design mainly focused on basic needs such as efficient layout, easy movement, and maximum seating capacity. The goal was to serve more people quickly and function smoothly. However, over time, with increasing competition and changing user expectations, this approach has shifted. Human experience of space is naturally based on multiple senses working together. When a person enters a space, the brain does not process what they see, hear, smell, or touch separately. Instead, it combines all these sensory inputs to create one complete understanding of the environment. This process is known as sensory integration.

Interior and architectural design is rooted in the understanding that spaces are experienced through a combination of human senses rather than visual perception alone. This approach focuses on how elements such as light, material, sound, scent, and thermal conditions collectively influence human emotions, behavior, and spatial experience. It advocates for designing environments that engage all senses simultaneously through strategies like sensory layering, spatial sequencing, and zoning, creating immersive and emotionally resonant spaces. In practice, this results in environments that enhance comfort, well-being, and memory by integrating natural elements, controlling microclimate, and orchestrating sensory interactions, ultimately transforming architecture and interiors into holistic, human-centred experiential systems rather than purely visual compositions. A well-designed restaurant considers how each element connects with the others to create a smooth, comfortable, and meaningful experience for the user. Elements such as interiors, lighting, music, and choice of materials are carefully planned and combined to shape the overall atmosphere. All these aspects work together to influence how people feel and interact within the space.

#### IV. SENSORY COMPONENTS IN DINING SPACES

The experience of a dining space is created through different senses working together. Each sense plays an important role, but it is their combination that makes the space feel comfortable, enjoyable, and memorable.

##### A. *What We See (Light, Colour, and Space)*

The first impression of a restaurant comes from what we see. Lighting, color, and the overall arrangement of the space help set the mood and guide how people move around. Soft, warm lighting creates a calm and cozy feeling, while brighter lighting makes the space feel more active. Colors also affect emotions—some feel warm and inviting, while others feel cool and relaxing. The way furniture and spaces are arranged helps people understand where to sit and move easily.

##### B. *What We Smell (Smell and Aroma)*

Smell has a strong connection to emotions and memory. In restaurants, the smell of food is very important as it can make people feel hungry and comfortable. Some places also use light background scents to create a unique feeling, but it is important that these smells are not too strong. A balanced smell can make the space more pleasant and memorable.

##### C. *What We Hear (Sound and Music)*

Sound plays a big role in how people feel in a space. Music helps set the mood—slow music creates a relaxed feeling, while faster music makes the space feel lively. At the same time, too much noise can be uncomfortable. Proper control of sound helps people talk easily and enjoy their time without disturbance.

##### D. *What We Feel (Touch and Comfort)*

The sense of touch comes from materials, furniture, and overall comfort. Different textures—like smooth, rough, soft, or hard—add variety and character to the space. Comfortable seating, good materials, and a pleasant temperature make people feel relaxed. When people are physically comfortable, they enjoy their experience more and tend to stay longer.

All these elements are connected and should be designed together. When balanced well, they create a dining space that feels natural and wholesome.

#### V. SENSORY INTEGRATION AND TEMPORAL EXPERIENCE

The effectiveness of multisensory design works efficient when instead of treating each sense separately, each element should support another to create one smooth and comfortable experience.

A dining experience also happens step by step over time, and each stage creates a different feeling for the user:

- **Entry**—The first impression creates curiosity and builds excitement.
- **Seating**—The user starts to relax and feel comfortable.
- **Dining**—The main experience, where food, surroundings, and mood come together.
- **Exit**—The final impression that stays in the user's memory.

By carefully designing each of these stages, restaurants can create a better overall experience. When people feel comfortable and enjoy each moment, they are more likely to remember the place and want to visit again.

## VI. DESIGN STRATEGIES

Multisensory and climate-responsive design in dining spaces can be achieved through careful spatial zoning and sequencing, where the user journey transitions smoothly from entry to dining and exit, creating a layered experiential flow. Microclimate strategies such as courtyards, natural ventilation, shading devices, and thermal mass help maintain indoor comfort while reducing dependence on mechanical systems. The integration of sensory elements should be balanced to enhance user experience without causing overload.

Biophilic design plays an important role by incorporating natural elements such as vegetation, water features, and daylight to improve well-being and create a connection with nature. Layered lighting strategies using ambient, task, and accent lighting help define mood and spatial hierarchy,

while material selection focusing on natural, local, and textured surfaces enhances tactile comfort and cultural relevance. Acoustic control through soft materials and spatial zoning ensures a comfortable auditory environment, supporting conversation and relaxation.

Additionally, integrating cultural and contextual elements rooted in local architecture and materials strengthens the identity of the space. Flexible planning allows adaptability for different user groups and functions, while sustainable approaches such as passive cooling, energy-efficient systems, and local sourcing contribute to long-term environmental performance. Together, these strategies create a cohesive, comfortable, and immersive dining environment that responds to both user experience and climatic conditions.

Overall, a successful dining space is one where all these elements are well-balanced and connected. The design should match the theme of the restaurant, the type of users, and the local context.

## VII. CHALLENGES

While multisensory design has the potential to create rich and engaging dining experiences, it also comes with several practical challenges.

- 1) One of the main issues is sensory overload. When too many sensory elements—such as lighting, sound, smell, and textures—are used at once, it can overwhelm users, causing discomfort, fatigue, and a reduced overall experience. Achieving the right balance requires careful planning and a clear understanding of how people perceive different stimuli.
- 2) Maintenance and operational complexity are another challenge. Lighting systems, scent diffusers, sound treatments, and material finishes need regular care to function as intended. In busy restaurants, wear and tear on furniture and surfaces can reduce the effectiveness of the sensory design over time.
- 3) Budget constraints also play an important role. High-quality materials, advanced lighting, and acoustic solutions often increase costs, so designers need creative approaches to deliver a rich sensory experience within financial limits.
- 4) In addition, diverse user preferences and cultural expectations in India make it difficult to design a space that appeals to everyone. A design that feels lively and exciting to one group may feel overwhelming to another.
- 5) Environmental factors, such as climate, urban noise, and limited space, further complicate design decisions, particularly in dense cities.
- 6) Finally, the lack of standardized guidelines for multisensory design means much of the process depends on the designer's experience, intuition, and experimentation.

## VIII. CONCLUSION

The key to successful multisensory design lies in balance—ensuring that all sensory elements work together harmoniously rather than competing with one another.

In urban India, designing for the senses requires consideration of local climate, culture, and lifestyle. For example, temperature, airflow, and material choices affect comfort, while cultural preferences shape color palettes, textures, and sounds. A space that considers these factors feels natural, welcoming, and enjoyable for its users.

Beyond aesthetics and comfort, multisensory design also supports emotional engagement. Subtle use of light, sound, aroma, and tactile experiences can evoke anticipation, relaxation, or excitement, making dining not just a functional activity but a memorable experience. Thoughtful sequencing of the user journey—from entry to seating, dining, and exit—can enhance this effect, creating lasting impressions and positive associations.

Future dining spaces should focus on user-centred, context-aware, and environmentally conscious design, integrating sensory experiences with sustainability and micro-climatic strategies. By prioritizing these principles, restaurants can create engaging spaces where sensory design is not just an addition but a central element of the overall experience.



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